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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,941	03/23/2001	Stephen Christopher Kitson	30001065	6953

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EXAMINER	
DUONG, THOI V	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 09/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/816,941	KITSON ET AL.	
	Examiner	Art Unit	
	Thoi V. Duong	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9,11-20 and 22-49* is/are pending in the application.

4a) Of the above claim(s) *12-20,22,23 and 30-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,11,24-29 and 34-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 26, 2006 has been entered.

Accordingly, claims 1, 11, 34 and 48 were amended, claims 8, 10 and 21 were cancelled, and new claim 48 was added. Currently, claims 1-7, 9, 11-20 and 22-49 are pending in this application; of these claims, claims 12-20, 22, 23 and 30-33 are withdrawn and claims 1-7, 9, 11, 24-29 and 34-49 are considered in this office action.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 11, 34 and 48 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 2, 4, 9, 11, 24-29, 34, 36, 39 and 41-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Samant et al. (Samant, US 6,519,018 B1).

Re claim 1, as shown in Figs. 2 and 3, Samant discloses a liquid crystal device comprising:

a first cell wall and a second cell wall enclosing a layer of liquid crystal material (col. 2, lines 5-9);

electrodes for applying an electric field across at least some of said liquid crystal material (col. 1, lines 30-36 and col. 2, lines 1-9); and

a surface alignment structure on the inner surface of at least the first cell wall 32 providing a single desired uniform alignment to a liquid crystal director, said alignment selected from the group consisting of planar, tilted and homeotronic (col. 2, lines 43-58);

wherein said surface alignment structure comprises a two dimensional array of alignment posts 34 (pillars) which are formed from a material selected from the group consisting of a photoresist material and a plastics material, and which are shaped and oriented to produce the desired alignment (col. 4, lines 35-63 and col. 5, lines 30-35).

Re claim 2, said posts have a height in the range from about 2 to 10 micrometers, which overlaps the claimed range of about 0.5 to 5 micrometers (col. 5, lines 15-20).

Re claim 11, as shown in Figs. 2 and 3, Samant discloses a cell wall for use in manufacturing a liquid crystal device, comprising a wall structure 32 having a surface alignment structure on a surface thereof, for providing a single desired uniform alignment to a liquid crystal director,

wherein said aliqnment is selected from the croup consisting of planar, tilted and homeotronic (col. 2, lines 43-58),

wherein said surface alignment structure comprises a two dimensional array of alignment posts 34 which are formed from a material selected from the group consisting of a photoresist material and a plastics material, and which are shaped and oriented to

produce the desired alignment (col. 4, lines 35-63 and col. 5, lines 30-34).

Re claim 34, as shown in Figs. 2 and 3, Samant discloses a liquid crystal device comprising:

a first cell wall and a second cell wall enclosing a layer of liquid crystal material (col. 2, lines 5-9);

electrodes for applying an electric field across at least some of said liquid crystal material (col. 1, lines 30-36 and col. 2, lines 1-9); and

a surface alignment structure on the inner surface of at least the first cell wall 32 providing a single desired uniform alignment to a liquid crystal director, said alignment selected from the group consisting of planar, tilted and homeotronic (col. 2, lines 43-58);

wherein said surface alignment structure comprises a two dimensional array of alignment posts 34 (pillars) which are shaped and oriented to produce the desired alignment (col. 4, lines 35-63 and col. 5, lines 30-35), and which have a height in the range from about 2 to 10 micrometers (col. 5, lines 15-20), this range overlapping the claimed range of about 0.5 to 5 micrometers.

Re claim 48, as shown in Figs. 2 and 3, Samant discloses a liquid crystal device comprising:

a first cell wall and a second cell wall enclosing a layer of liquid crystal material (col. 2, lines 5-9);

electrodes for applying an electric field across at least some of said liquid crystal material (col. 1, lines 30-36 and col. 2, lines 1-9); and

a surface alignment structure on the inner surface of at least the first cell wall 32 providing a single desired uniform alignment to a liquid crystal director, said alignment selected from the group consisting of planar, tilted and homeotronic (col. 2, lines 43-58);

wherein said surface alignment structure comprises a two dimensional array of alignment posts 34 (pillars) which are formed from a material selected from the group consisting of a photoresist material and a plastics material, which are shaped and oriented to produce the desired alignment (col. 4, lines 35-63 and col. 5, lines 30-35), and which have a height in the range from about 2 to 10 micrometers (col. 5, lines 15-20), this range overlapping the claimed range of about 0.5 to 5 micrometers.

Re claims 4 and 36, at least part of a side wall of said posts 34 is tilted with respect to the normal to the plane of the first cell wall as shown in Fig. 2 (col. 4, lines 40-49).

Re claims 9 and 41, said posts are of a different shape in different regions of the device (col. 4, lines 57-63).

Re claims 24-27 and 42-45, Samant discloses that the alignment posts may have different shapes including square, rectangular, triangular, circular, ellipsoid, and the like (col. 4, lines 57-63). Accordingly, the alignment posts may have a square cross section, a round cross section, a triangular cross section, or an oval cross section.

Re claims 28 and 46, Samant discloses that the liquid crystal material is a nematic liquid crystal (col. 1, lines 30-36).

Re claims 29 and 47, the liquid crystal display device of Samant further comprises on or more spacer posts, said one or more spacer posts spanning the entire cell (col. 5, lines 15-20).

Re claim 39, Samant discloses that the posts are formed from a plastics material (col. 5, lines 30-35).

Re claim 49, Samant discloses that said posts are not treated of formed from a material which induce local homeotropic alignment in the liquid crystal material (col. 2, lines 43-58).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3, 5, 6, 35, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samant et al. (Samant, US 6,519,018 B1) in view of Funada et al. (Funada, USPN 4,232,947).

Samant discloses a liquid crystal device that is basically the same as that recited in claims 3, 5, 6, 35, 37 and 38 except for said posts having a height in the range of about 1.0 to 1.2 micrometer, being spaced from about 0.1 to 5 micrometer apart from each other, and having a width in the range of about 0.2 to 3 micrometer.

As shown in Fig. 4, Funada discloses a structure consisting of a multiplicity of micro-grooves or strips (Applicant's alignment posts) for the purpose of regulating or defining the alignment of the liquid crystal molecules (see also Fig. 5(d) and col. 2, lines 61-68),

wherein, re claims 3 and 35, the posts have a height (depth of microgrooves) of 1 micrometer (10, 000 angstrom) (col. 2, lines 61-68), which meets the claimed range of about 1.0 to 1,2 micrometer; and

wherein, re claims 6 and 38, these alignment posts are spaced about "Alpha =10,000 Angstroms" (or 1 micrometer) (col. 3, lines 1-16), the spacing lying within the claimed range from about 0.1 to 5 micrometer.

Accordingly, re claims 5 and 37, each post also has a width of about 1 micrometer since each post has substantially symmetrical shape (col. 3, lines 1-7).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal device of Samant with the teaching of Funada by forming alignment posts having a height of 1 micrometer, spaced apart about 1 micrometer and each having a width of about 1 micrometer so as to provide a much higher degree of uniformity in visual indication in a relatively wide range of observation angles (col. 1, lines 27-31).

7. Claims 7 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samant et al. (Samant, US 6,519,018 B1) in view of JP 5-249463 (JP'463).

Samant discloses a liquid crystal device that is basically the same as that recited in claims 7 and 40 except for the liquid crystal material containing a surfactant.

JP'463 discloses that a surfactant is added into the liquid crystal to facilitate high-grade display without generating crosstalks (Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal device of Samant with the teaching of JP'463 by adding a surfactant into the liquid crystal material so as to facilitate high-grade display without generating crosstalks (Abstract).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms, can be reached at (571) 272-1787.

Thoi V. Duong 

08/28/2006